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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
07/11/91	07/11/91	JOHN LEE K	18017/0007

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EXAMINER

THOMAS, J

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 11/02/91

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/558,279

Applicant(s)

HOLLOCK ET AL.

Examiner

Courtney Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 25 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is written in two paragraphs. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6-9, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Wirth et al. (U.S. Patent 5,146,073).
4. As per claim 1, Wirth et al. disclose a radiation detection apparatus comprising a detector array (i.e. Fig. 2, #250; column 2, lines 45-47) and a lens (i.e. Fig. 1, #105) arranged to provide a single focused image of a distant scene on the array, the apparatus further comprising a reflector (i.e. Fig. 2, #200) situated between the plane of the array and the plane of the lens so as to extend the field of view by reflecting onto the detector array radiation entering the lens from outside the normally imaged field of view of the array-lens combination (see Fig. 2).
5. As per claim 6, Wirth et al. disclose a radiation detection apparatus as recited in claim 1, wherein the apparatus includes one or more microprocessors or other processors which distinguish events in the extended field of view from those in the normally imaged field of view by means of appropriate pattern recognition algorithms (see abstract; column 2, lines 15-19).

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6. As per claim 7, Wirth et al. disclose a radiation detection apparatus as recited in claim 1, wherein the apparatus includes a source of radiation arranged to emit radiation onto the lens from outside the normally imaged field of view of the detector array (see Fig. 2, #70; column 1, lines 56-57).
7. As per claim 8, Wirth et al. disclose a radiation detection apparatus as recited in claim 7, in which the source illuminates different elements of the detector array at different times (column 4, lines 8-12, 42-60).
8. As per claim 9, Wirth et al. disclose a radiation detection apparatus as recited in claim 7, including means for shielding the detector array from the test source (see Fig. 2, #250, housing not shown).
9. As per claim 16, Wirth et al. disclose a radiation detection apparatus as recited in claim 7, in which a window protects the lens and the source is located inside the window (see Fig. 2, #110, 70).
10. As per claim 19, Wirth et al. disclose a radiation detection apparatus as recited in claim 7, including a microprocessor or other processor for commanding the automatic testing of the apparatus at intervals (see column 4, lines 8-12, 42-60).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 2-5, 10-15, 17, 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wirth et al. (U.S. Patent 5,146,073).

13. As per claims 2-5, Wirth et al. disclose the apparatus as cited in claim 1, but do not explicitly disclose the following: an apparatus in which a) the lens is plano-convex and the planar surface of the lens is directed towards the scene; b) the reflector has cylindrical symmetry about the optical axis of the lens; c) the reflector has one or more convex reflecting surfaces; and d) the reflector has one or more planar reflecting surfaces. Wirth et al. teach, however, the use of a deformable mirror and lens for shaping incidental radiation and directing it to a receiving detector array (see Fig. 2). The use of bulk optical elements are well known means used to direct light and would be recognizable to one having ordinary skill in the art as means for beam shaping, focusing and/or propagation. Therefore, it would have been obvious to one having ordinary skill in the art to modify Wirth et al., incorporating the aforementioned limitations. One would have been motivated to make such a modification in view of the art-recognized practice of utilizing optical elements for beam shaping, focusing and propagation.

14. As per claims 10-15, Wirth et al. do not explicitly disclose the following: an apparatus a) including a further reflector arranged to reflect radiation from the test source towards the lens; b) the further reflector has one or more concave surfaces; c) the further reflector is frusto-conical; d) the further reflector has one or more planar reflective surfaces; e) the further reflector has cylindrical symmetry about the optical axis of the lens and f) the further reflector is arranged to reflect radiation onto the whole of the detector array. Wirth et al. teach, however, the use of a deformable mirror and lens for shaping incidental radiation and directing it to a receiving detector array (see Fig. 2). The use of bulk optical elements are well known means used to direct

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light and would be recognizable to one having ordinary skill in the art as means for beam shaping, focusing and/or propagation. Therefore, it would have been obvious to one having ordinary skill in the art to modify Wirth et al., incorporating the aforementioned limitations. One would have been motivated to make such a modification in view of the art-recognized practice of utilizing optical elements for beam shaping, focusing and propagation.

15. As per claim 17, Wirth et al. do not explicitly disclose an apparatus in which the further reflector is located outside the window. Wirth et al. teach, however, the use of a deformable mirror and lens for shaping incidental radiation and directing it to a receiving detector array (see Fig. 2). The use (and arrangement) of bulk optical elements are well known means used to direct light and would be recognizable to one having ordinary skill in the art as means for beam shaping, focusing and/or propagation. Therefore, it would have been obvious to one having ordinary skill in the art to modify Wirth et al., incorporating the aforementioned limitations. One would have been motivated to make such a modification in view of the art-recognized practice of utilizing optical elements (and arrangement) for beam shaping, focusing and propagation.

16. Claims 18, 20-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wirth et al. (U.S. Patent 5,146,073) and further in view of Wiemeyer et al. (U.S. Patent 5,617,077).

17. As per claims 18 and 20-22 and 24-25, Wirth et al. do not explicitly disclose a test source comprising means for modulating its output or that the source comprises conventional source elements such as electrically heated filaments, or continuously radiating diodes. In addition Wirth et al. do not explicitly disclose the arrangement of said source or plurality of sources (not shown). Wirth et al. teach, however, the inclusion of a source for signal capture of an extended

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field of view (i.e. column 2, lines 15-19). The system as disclosed is capable of identifying a scene, and recognizing gradients in the received information (column 5, lines 2-15). Wiemeyer et al. teach the use of a test source with modulating means (column 3, lines 35-39) producing radiation distinguishable over a field of view (i.e. column 2, lines 18-29). Therefore, it would have been obvious to one having ordinary skill in the art to modify the system as disclosed by Wirth et al. to include a source (with means) capable of generating information contrary to the scene being viewed, as per the teachings of Wiemeyer et al., since the system as disclosed is designed to recognize gradients in received information. Accordingly, the use of conventional sources (i.e. heated electrical filaments, laser diodes, and their functional equivalents) would have been obvious, since conventional sources are operable to generate radiation in various operating modes, while a plurality of sources can contribute to intensity modulation and radiation distribution.

18. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wirth et al. (U.S. Patent 5,146,073) and further in view of Rogers et al. (U.S. Patent 6,118,852).

19. As per claim 23, Wirth et al. do not explicitly disclose the test source comprising a refractory metal film deposited on a substrate and the substrate is the window. Rogers et al. disclose a thin refractory metal deposited on a transmission window. Rogers et al teach the use of the deposited thin film as providing small attenuation of passed radiation and the ability of the window to withstand the high temperature-operating environment (abstract, column 2, lines 15-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Wirth et al. to comprise a test source having a refractory metal film deposited on a substrate and the substrate being the window, as per the

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teachings of Rogers et al., to select refractory materials for use in radiation emitting apparatuses, housings and apertures, the benefit being that the structure(s) and surrounding elements would be able to withstand the generation of high temperatures without prematurely succumbing to material failure, while still providing adequate radiation transmission.

20. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wirth et al. (U.S. Patent 5,146,073) and further in view of Chipper (U.S. Patent 5,852,516).

21. As per claims 26-28, Wirth et al. do not explicitly disclose the array consisting of either thermal detectors or pyro-electric detectors; and the detector array mounted on a semiconductor integrated circuit. Chipper teaches that infrared or thermal imaging systems typically use a plurality of thermal sensors (it is noted that pyro-electric detectors also fall into this category) to detect infrared radiation and produce an image capable of being visualized by the human eye (see column 1, lines 30-40); these detectors are also conventionally mounted on semiconductor circuitry (see also column 1, lines 55-67, column 2, lines 1-13). Therefore, it would have been obvious to one having ordinary skill in the art to modify Wirth et al. to comprise either thermal or pyro-electric detectors, mounted on semiconductor integrated circuitry, since it is a conventional practice within the imaging art to devise sensors responsive to specified wavelengths of electromagnetic radiation and wherein the array is constructed on an semiconductor integrated circuit for the processing of converted radiation to electrical signals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (703) 306-0473.

The examiner can normally be reached on M - F (9 am - 5 pm).


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305 3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3594 for regular communications and (703) 305-3594 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Courtney Thomas

October 31, 2001


ROBERT H. KIM
PATENT EXAMINER
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